



The Daedalean

Semper Discens

*Monthly Aerospace Education Newsletter of the Connecticut
Wing of the Civil Air Patrol*

*Stephen M. Rocketto, Maj., CAP
Director of Aerospace Education
CTWG
srocketto@aquilasys.com*

Volume IV, Number 3

March 2011

FOR FUTURE PLANNING

20 MAR-NE Air Museum Open Cockpit
27 MAR-NE Air Museum Space Expo
01-03 APR-Tri-State SAREX
16 APR-2011-CSRRA High Power Rifle Clinic
13-15 MAY-CTWG Great Starts
21-22 MAY-Corporate Learning Course (tentative)
21-25 JUN-National AEO School
9-16 JUL-RSC-McGuire AFB
9-16 JUL-Reg. Cadet Ldrshp School-Concord, NH
23 JUL-07 AUG-NESA (two sessions)
08-14 AUG-CTWG Encampment
13-20 AUG-Reg. Cadet Ldrshp School-McGuire
17-20 AUG-CAP Nat'l Summer Conference
22-24 SEP-AOPA Summit-Hartford
22-23 OCT-CTWG Convention

CAP'S AEROSPACE EDUCATION NEWS BRIEF AVAILABLE ON-LINE

You can view the latest AE Newsbrief from CAP
NHQ at:
http://members.gocivilairpatrol.com/aerospace_education/stay_informed/ae_newsbriefs.cfm

CAP'S 2011 NATIONAL AEROSPACE EDUCATOR SCHOOL ANNOUNCED



*Curtiss NC-4, first aircraft to cross the Atlantic
rests at the National Naval Aviation Museum.*

Dr. Jeff Montgomery, CAP's Deputy Director of Aerospace Education, has announced the plans for the 10th annual National Aerospace Education School which will be held at the Naval Air Station, Pensacola, Florida, 21-25 June.

The School is primarily directed towards Squadron, Group, and Wing Aerospace Officers, DAEs and the Internal and External Wing Directors.

The school will brief the attendees on a number of new CAP programs or upgraded old programs: robotics, cyber defense, satellite imagery, and advanced model rocketry. The revised edition of Aerospace Dimensions will be discussed. The new cooperative venture with the Academy of Model Aeronautics will be explained. Additional topics will cover the bread and butter portions of CAP AE from administration to scheduling and curricula.



*Que Sera, Sera, a Douglas R4D-5, the first
aircraft to land at the South Pole poses*

incongruously on its skis in the Florida sunshine.

Attendees will be offered a chance to watch a performance of the Blue Angels, tour the Museum of Naval Aviation, and visit the museum's restoration facility.



Consolidated PB2Y-5R Coronado, Adm. Nimitz's personal transport in WWII, under restoration at Pensacola.

Further information may be found at:

http://members.gocivilairpatrol.com/aerospace_education/internal_specific/aeo_resources/aeo_school.cfm

REPORT ON THE WINGS AEROSPACE EDUCATION ACTIVITIES IN 2010

Every squadron is mandated to submit an Aerospace Educational Activity Report to the Wing Director of Aerospace Activity at the end of each year. Here is a summary of the report.

Twelve of the thirteen squadrons filed the required report. According to these documents and information on file with Wing and National, the following is a summary of our activities:

The Wing has approximately 700 members split evenly between cadets and seniors. There are also nine Aerospace Education Members, teachers who maintain a special relationship with CAP.

All of our Aerospace Education positions are filled at squadron and wing level. The Wing has 29 officers who hold specialty track ratings: five masters, six seniors, and 18 technicians. However, six of the assigned AEOs hold no rating and three of them have not earned the Yeager ribbon.

Seventeen seniors earned Yeager Awards in 2011 and records indicate that 40% of the Wing's Seniors have earned the award

Eight squadrons are running rocketry programs and three competed in the Commander's Cup.

Squadrons made 13 presentations in schools and five to other outside organizations. However, most of these were done by only two squadrons.

Seven squadrons were visited by Wing AE staff during the year.

Only three squadrons reported participation in the AEX program.

The Wing sponsored two field trips, a five day stay in Washington and a one day trip to Olde Rhinebeck Aerodrome.

Twelve issues of The Daedalean, the CTWG Aerospace Education Newsletter were published and distributed.

The CTWG Aerospace Plan of Action for 2011 follows and addresses some of questions which you might have about the future of the program.

CTWG AEROSPACE PLAN OF ACTION FOR 2011

The annual CTWG A/S Ed Plan of Action has been approved by the Wing Commander as submitted, as per regulations to National and Regional offices.

The plan is divided in four sections: major goals, cadet, internal, and external aerospace education.

Major Goals

1. Manage the Aerospace Education Program as defined by CAP regulations, pamphlets, and policies.
2. Visit all of the CT squadrons at least once in order to study their best practices and canvas them for new ideas. Visits will be conducted by the DAE and the Internal and External AE Officers.
3. Continue to maintain a line of communications with all CTWG Aerospace Education stakeholders by means of monthly publication of *The Daedalean*, the CTWG AE Newsletter.
4. Continue to develop relationships with external agencies and organizations to promote the CAP program.
5. Continue to seek candidates for major CAP aerospace educational awards and honors.
6. Develop and implement an Aerospace Education program for Wing Encampment IAW the requirements of pertinent CAP regulations.

Cadet Aerospace Education

1. Continue participation in the CAP Rocketry Program and improve attendance at the Commander's Cup Rocketry Contest from three squadrons to six squadrons.
2. Encourage participation in the AEX Program by providing encouragement, guides, and resources. Improve participation from three squadrons to six squadrons.

3. Continue the CAP/NRA Firearms Safety and Marksmanship Program.
4. Provide an opportunity for one major multi-day Wing field trip to aerospace sites.
5. Provide opportunities for two one day Wing field trips to aerospace sites
6. Continue to develop a set of teaching aids for the *Aerospace Dimensions* modules.

Internal Aerospace Education

1. Establish a format to encourage and promote study by those officers who have not completed the AEPSM. Increase the number of AEPSM awardees from 17 to 30.
2. Encourage and promote advancement by AEOs who currently are enrolled in the specialty track. All squadron AEOs should achieve a minimum Specialty Track Rating of Technician. Two AEOs should achieve a Senior Specialty Track Rating.
3. Offer a seminar for Aerospace Education Officers at Wing Headquarters.
4. Offer a seminar in Aerospace Education at the Wing Conference.

External Aerospace Education

1. Promote Aerospace Education in schools, youth organizations, and social and service organizations. Increase Squadron activity from two squadrons to six squadrons. Increase promotional events from 17 to 30.
2. Work closely with the Wing Public Affairs Officer to promote CAP and Aerospace Education in the community at large.

NOTES ON IMPLEMENTATION OF THE CTWG AE PLAN OF ACTION

The following Officers are listed as the AEO for their Squadrons and have the primary responsibility of promoting and overseeing the aerospace program in their squadrons.

004 103rd	J. Fearon
011 143rd	R. Hinkson
014 Silver City	R. Malagutti
022 Stratford Eagles	G. Rotheram
027 169th	J. Dittrich
042 399th	J. Bisnov
062 NW Hills	D. Hull
071 Royals	K. Shea
073 N. H. Minutemen	J. Dunn
074 Danielson	P. Hirons
075 Thames River	Bourque/Rocketto
801 New Fairfield H.S.	C. Welter

Wing S. Rocketto, Director of AE
 K. Shea, External AEO
 A. Dammers, Internal AEO

If any of the above listed information is incorrect, please send an email to the address on the masthead of the newsletter.

In order to reach the goals set out for the 2011 year, the Wing AE Staff makes the following requests.

1. Submit short reports, as the activities occur, of non-routine squadron AE activities to The Daedalean for publication. These might include field trips, speakers, special projects, *etc.*

2. Seek out some affiliation with one or two local outside groups. For example, set up a program for earning Aviation Merit Badge with a Boy Scout troop, take a youth group on an airport tour, make a presentation at a business or social club on CAP, or visit a school and offer to be a guest speaker for a class in history, technology, or science.

3. Nominate candidates for aerospace awards. Do you know a teacher, CAP member, or organization that promotes aviation? They may be eligible for a Brewer Award, CAP Aerospace AEO Award, or CAP's Aerospace Teacher of the Year Award.

4. If you have not already done so, start the Cadets on the path to earn the Rocketry Award and consider joining us at the annual Commander's Cup Rocketry Contest.

5. Join the AEX program. This is a project oriented approach to aerospace learning.

6. Encourage those Officers who have not done so to enter the Aerospace Education Program for Senior Members (AEPSM) and earn the Yeager ribbon. Many agree that this educational experience is one of the most enjoyable offering by CAP.

7. Promote advancement in the Aerospace Specialty Track by Officers holding squadron AEO positions and training as assistant AEO to support squadron activities.

8. Recruit teachers for the Aerospace Education Member cadre and offer Teacher Orientation Program flights.

The Wing Staff will provide the following to the Squadrons:

1. An open line of communication to the DAE to answer questions and assist in promoting activities and resolving problems.

2. Two Wing sponsored field trips.

3. The Commander's Cup Rocketry Day

4. A minimum of one one day Aerospace Education Workshop for AEOs and potential AEOs.

5. A display and AE workshop at the CTWG Conference

6. Development and support for the AE program at Wing Encampment

7. A monthly newsletter, *The Daedalean*.

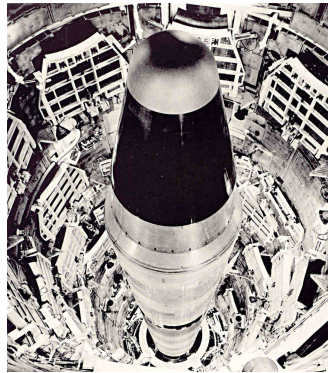
8. Assistance, if requested, in setting up an annual Citrus Fruit Fund Raiser.

9. Provide opportunities for Cadets to earn NRA marksmanship medals.

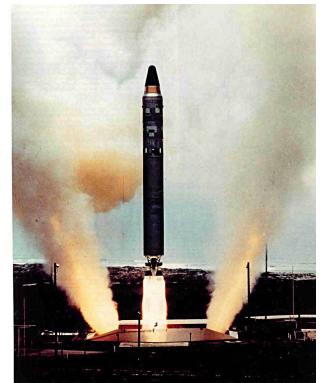
10. Separate emailings will be made to Squadron Commanders and AEOs with supplementary information on how to join the AEX program, how to promote the Yeager, the advancement requirements in the AEO Specialty Track, etc.

12. Distribution of a beta test "power point" program to supplement the Cadet AE texts.

the Colonel, then a young USAF subaltern, served as the member of a Strategic Air Command (SAC) Intercontinental Ballistic Missile (IBM) crew standing watch in buried silos in the Arizona desert.



In the Silo
(USAF photo)



A Lift-off at Vandenberg
(USAF photo)

LTCOL STIDSEN TELLS OF 8,000 HOURS UNDERGROUND



Thames River Composite Squadron had the pleasure of hosting LtCol Carl Stidsen as guest speaker in February. Col Stidsen was a CAP Cadet from 1957- 1961 in the MA Wing, and rejoined CAP as a Senior Member in the AZ Wing in 1972. He transferred to the CT Wing in 1973. He is currently

a rated CAP Command Pilot, the CT Wing IG, and is credited with 43 years of service with CAP.

Contrary to rumor, Col Stidsen logged the time underground neither as a partisan in the *maquis* nor as an undercover investigator for his work as CTWG Inspector General. From 1966 to 1970,

Col Stidsen appeared in the 1960s "missile whites" uniform and delivered an illustrated lecture entitled "On the Nuclear Bullseye" subtitled "Life on a Cold War Intercontinental Ballistic Missile Crew." The US-Soviet stand-off during the "Cold War" resulted in thousands of nuclear warheads ready for use. The employment of these devices would probably result in the end of civilization on the planet and that fact, the fact of "mutually assured destruction" was a deterrent to war, a negative sum game--no one wins!



Launch Control Center



Launch Control Console

However, there was a possibility that a surprise first strike, one which destroyed ones' ability to strike back might be possible. Consequently, prime targets for the missiles and bombs were each others launch sites; the static missile crews were literally sitting on the 'nuclear bullseye.'

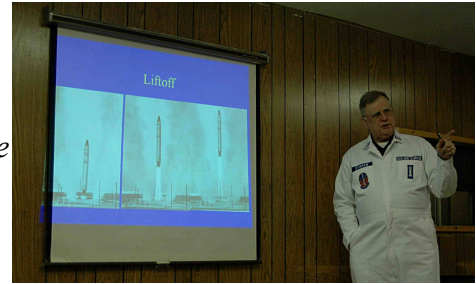
*Launch Sequence-
That's all there is
to it!*



Stidsen explained how sites were hardened to resist the destructive over-pressures of nuclear blasts and how crews were trained to keep the missiles on-line and launch, even after a pre-emptive attack.

The Martin LGM-25C or Titan II was the particular bird on which Col Stidsen sat alert duty. The two stage vehicle used hypergolic liquid fuel, carried a 10 megaton nuclear warhead, had an all-up weight of 338,000 pounds pushed by 430,000 lbs of thrust which gave it a range of 6300 nm. The three launch sites in Arizona, Kansas, and Arkansas were positioned so as to cover most of the eastern Soviet Union.

*And away she
goes!*



Fifty four of these missiles were active and eventually were augmented by 1000 solid fuel Minutemen ICBMs in four other states, the US Navy's forty George Washington class Polaris missile boats, each carrying 16 missiles, intermediate range ballistic missiles based in Europe, and the Strategic Air Command's bomber fleet, of which one third were airborne at any one time and the rest on 15 minute standby! The Russians maintained a similar posture. This is what was called the "Balance of Terror."

Col Stidsen presented interesting details about the training and duties of the crews which manned the silos. His duty station was in the ring of launchers surrounding Tucson, Arizona. As a new second lieutenant in 1965, Stidsen assigned to the 390th Strategic Missile Wing of the 15th Air Force, Strategic Air Command at Davis-Monthan AFB, Tucson AZ, to become part of the Titan II ICBM Program. After completing Missile Technical Training at Sheppard AFB, Texas, and Emergency War Order training at Vandenberg AFB, California, he joined Crew R-114 as a Deputy Missile Combat Crew Commander. In December of 1967 he upgraded to Missile Combat Crew Commander and took over Crew R-149, which he commanded until leaving Active Duty at the end of March 1970.

He later joined the USAF Active Reserve, and was assigned to the CAP/USAF Reserve Assistance Program and served in that Program for 15 years. In 1990, Major Stidsen retired from the USAF.

The Titan IIs were maintenance intensive due to their complex construction and the corrosive effect of the liquid fuel and oxidizer on the seals. Large crews were employed to keep the operating but a launch crew consisted on only four men, two officers and two enlisted technicians. Each tour of duty consisted of six hours of briefing and travel and 24 hours on alert.

By coincidence, Maj Rocketto, the Wing DAE, lived in the only house in the area, within a mile of the site, in the section of the desert now known (euphemistically) as Green Valley. At that time, the Interstate had not been built and the whole Sahuarita area was deserted except for Silo 571-7, the Duval copper mine, and Maj Rocketto's hovel. Since Col Stidsen and Maj Rocketto were there at the same time, it is highly likely that they may have crossed paths on the roadway!

During the post-lecture question-and-answer session, TRCS's Maj deAndrade commented on his tour as the first rated aviator to be assigned to a Minuteman III ICBM site, Malmstrom AFB, Montana. Differences between the liquid fueled Atlas and the solid fueled Minuteman were discussed.

AEROSPACE HISTORY **MEMORIES OF MARCH'S PAST**

01 MAR, 1924-First flight of the semi-rigid airship N.1 at Ciampino, Italy. Renamed *Norge*, she was the first airship over the North Pole.

02 MAR, 1969-First flight of the Sud Aviation/British Aircraft Corporation *Concorde*.



Concorde in company with first Boeing 707 and the Boeing 307, the first pressurized airliner.

03 MAR, 1919-First international air mail service is inaugurated when Eddie Hubbard and William Boeing flies a Boeing C-700 series seaplane between Vancouver and Seattle.

04 MAR, 1957-First flight of the Grumman WF-2 Tracer, an airborne early warning aircraft, later renamed the E-1B.



Willie Fudd on a USS Intrepid

05 MAR, 1936-First flight of R. J. Mitchell's Supermarine Spitfire, piloted by "Mutt" Summers.



Spitfire Mk I displays it beautiful elliptical wing tips at RAF Hendon.

06 MAR, 1953-Boeing delivers the last of the piston engine bombers to the USAF, a TB-50 Superfortress.



B-50 Lucky Lady II, on display at Planes of Fame, Chino, set world record with 25,452 mile, 94 hr 01 min flight around the world.

07 MAR, 1963-First flight of the Hughes OH-6A.



CTANG Loach in the Hover

08 MAR, 1917-Count Ferdinand Zeppelin goes West.

09 MAR, 1971-First flight of the TF-8A, a NASA modified Vought Crusader, designed to test Richard Whitcomb's supercritical airfoil.



NASA Test Vehicle-Dryden Flight Research Center

10 MAR, 1956-Flying a Fairey Delta 2, Peter Twiss is the first aviator to exceed 1,000 mph

11 MAR, 1941-President Franklin D. Roosevelt signs the Lend-Lease Act which allows for the transfer of armaments to other nations whose defense is important for US security. Approximately 43,000 aircraft will be transferred to nations fighting the Axis powers.



Over 4,400 lend-lease Kobrastochkas fought in the "Great Patriotic War."

12 MAR, 1946-The Army Air Force School at Maxwell Air Base, is renamed Air University.



Muir Fairchild Library, Maxwell AFB

13 MAR, 1961-First flight of the Hawker Siddeley P.1127 Kestrel, forerunner of the Harrier.



The FGA.1 /XV-6A version of Kestrel assigned to NASA for flight testing, Hampton, Virginia

14 MAR, 1927-Pan American Airlines organized.



The glory that was PanAm-Boeing 747 on departure.

15 MAR, 1951-Boeing test pilots, flying a KC-97A and a B-47A perform the first aerial refueling by the boom method.



Col Doucette of Thames River Composite Squadron was a KC-97 Stratotanker navigator.



Boeing B-47B Stratojet at Pima

16 MAR, 1922-Henri Julliot, inventor of the semi-rigid airship, goes West.

17 MAR, 1924-Four Army Douglas World Cruisers, named Seattle, Boston, Chicago, and New Orleans depart Clover Field, Santa Monica for Seattle on the start of the first round the world flight.



Chicago at NASM on the Mall

18 MAR, 1965-Cosmonaut Alexi Leonev, flying in *Voskhod 2*, performs the first extra vehicular activity in space.

19 MAR, 1952-First flight of the North American F-86F.



Sabrejet at NEAM bears markings of noted aerial tactician "Boots" Blesse.

20 MAR, 1956-First flight of the North American AJ-2P Savage.



The Savage was a composite powered aircraft with two piston engines and one turbojet.

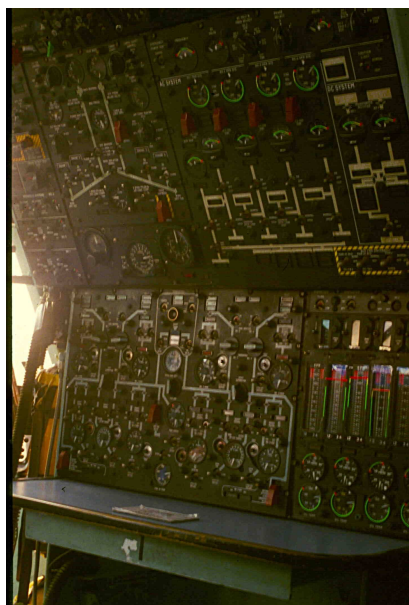
21 MAR, 1946-The USAF establishes the Strategic Air Command, the Tactical Air Command and the Air Defense Command.



22 MAR, 1915-The US Navy adopts the term “naval aviator” to replace “naval air pilot.”

23 MAR, 2001-Space station *Mir*, after 15 years in space, is deorbited and falls to earth.

24 MAR, 1977-First flight of the Lockheed YC-141B, the stretched Starlifter equipped with in-flight refueling gear.



*Starlifter Flight
Engineer Panel*

25 MAR, 1958-First flight of the Canadair CF-105 Arrow, piloted by Janusz Zurkowski.



*Model at Canadian Air and Space Museum,
Downsview-A promising design killed by a
political decision.*

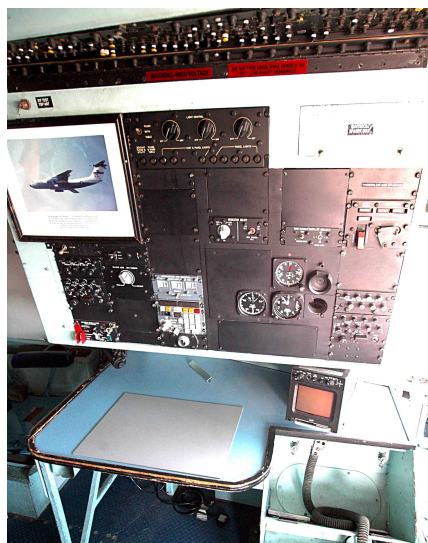
26 MAR, 1992-Cosmonaut Serge Krikalov, who departed from the Soviet Union, returns to the Commonwealth of Independent States having spent 313 days aboard Space Station Mir during which time, the Soviet Union dissolved.

27 MAR, 1975-First flight of DeHavilland of Canada DHC-7.



PanAm Express Dash 7 Rotates

*Starlifter
Navigator's
Station*



28 MAR, 1971-Pioneer in aerial photography and aircraft production, Sherman Fairchild goes West.

29 MAR, 1927-The Aeronautics Board of the Department of Commerce issues Aircraft Type Certificate Number One to the Buhl C-3A Airster.

30 MAR, 1931-Boeing delivers the first 247 to United Airlines.



United's 247D, the first modern airliner, flown by Roscoe Turner and Clyde Pangborn to third place in the MacRobertson Race, England to Australia.

The winner was a DH-88 racer specifically designed for the race. In second place was a Douglas DC-2 flown by legendary KLM pilots Koene Parmentier and J.J. Moll.

31 MAR, 1911-Congress makes its first appropriation for Army aeronautics, \$125,000 for fiscal year 1912.

NEW FEATURE

The Daedalean will offer extended historical articles on air war topics in future editions. Each are planned to be published in the month on which the event occurred. The first offering is a report of the March 30-31 air battle between RAF's Bomber Command and the German Air Defenses protecting Nuremburg.

Future articles will address such diverse topics as aerial ambushes, airborne resupply, and torpedo attacks.

A BAD NIGHT FOR BOMBER COMMAND

The NUREMBURG RAID

30-31 MARCH, 1944

From November of 1943 until March of 1944, The Royal Air Force's Bomber Command engaged in what their commander, Air Chief Marshal Sir Arthur Harris called "The Battle of Berlin." The Italian strategist, General Giulio Douhet had published the first book advocating an offensive strategic bomber campaign as a means of breaking the resistance of an enemy nation. This text, *Il dominio dell'aria* (*The Command of the Air*), argued that "the bomber will always get through" and that attacks on the population and production centers would break the morale of the enemy population and cripple the industrial system which produces domestic and military goods.

Harris, like Billy Mitchell, was a advocate of Douhet's theory. However, the policy of the British government was to use aerial bombardment against military targets only. As the air war escalated and for a number of reasons, this policy was abandoned. Just before Harris was appointed Air Officer Commanding, Bomber Command, the British Cabinet the policy which allowed for bombardment of population centers.

Since the technology for precision bombardment was non-existent and experiences earlier in the war proved that daylight bombing led to unacceptable losses, night area bombing was adopted as the primary tactic of Bomber Command. When Harris was appointed as the commanding officer of Bomber Command, he immediately set to work to train and re-equip his force with adequate crews, aircraft, and base facilities to implement the attack on German proper.

To prosecute a policy of strategic bombardment, he shed the light twin engine bombers used early in the war and brought in the four engine heavies, primarily the Handley Page Halifax and the Avro Lancaster, arguably the best strategic bomber of the war, prior to the introduction of the Boeing B-29.

The Attackers



Avro Lancaster



Handley-Page Halifax

By 1943, under Harris's leadership, Bomber Command could launch raids of 1000 bombers and carried on effective campaigns now known as the "Battle of Hamburg" and the "Battle of the Ruhr." As might be expected German defenses improved and were countered by British countermeasures. Electronic devices, for navigation, warning, and bombing were developed. The command and control of the German night fighter force was improved. Radar and radar countermeasures were adopted, modified, and improved as each side met the threats imposed by the other.

Harris was adamant about carrying the war to the enemy. In response to "The Blitz," Harris pointed out that Germany had initiated attacks on civilian population first and paraphrased *Hosea* in one of his speeches:

The Nazis entered this war under the rather childish delusion that they were going to bomb everyone else, and nobody was going to bomb them. At Rotterdam, London, Warsaw, and half a hundred other places, they put their rather naive theory into operation. *They sowed the wind, and now they are going to reap the whirlwind.*

After the perceived successes of Hamburg and The Ruhr, Harris conceived of a campaign against Berlin, which he believed might end the war. Some thirty odd missions were launched, about half against Berlin and the others other cities, raids designed to weaken the German defenses by forcing them to split their forces. The last raid was mounted against Nuremburg.

On the morning of 30 March, Harris convened his staff for the daily Commander-in-Chief's conference. Forty minutes later, the conference adjourned after Harris approved Nuremburg as that night's target.

Nuremburg is a Bavarian city in southeast Germany. It was the site of Hitler's massive pre-war rallies and assumed symbolic importance for the Nazi movement. Nuremburg also was an important industrial center but had only suffered light attacks in the past and was relatively undamaged.

Exorbitant US claims of enemy fighters shot down were accepted and a representative from the US Eighth Air Force reported that a fighter sweep would be conducted into Germany to further weaken the German defenses. Furthermore, the last few British bomber raids incurred low casualty rates supporting the assumption of a weakened

interceptor force. Finally, Harris's bombers have been relatively inactive and the crews were well rested.

A number of possible targets were evaluated for the raid but Nuremburg had the most promising weather forecast. A low pressure area over Norway produced conditions favorable for icing and eliminated the choice of targets in north Germany. A relatively stable cold front stretched across Europe running from Ireland to the Baltic in a southeasterly direction and the south edge of the front promised cloud conditions which might help conceal the bomber force from the German interceptors.

And critically, a second phase moon would not set until the raiders were returning home.

The biggest problems the British faced in their night bombing campaign was weather and navigation. The short nights of summer halted the possibility of long distance raids. Unfortunately, the winter weather over northern Europe is abominable. The aircraft demanded good conditions for take-off and landing and low cloud cover over the target but enough clouds for concealment. The presence of a bright moon which illuminated the bombers precluded the choice of at least 10 days of each month from the raid schedule. British authorities would launch weather flights using high flying Spitfires and Mosquitos reconnoiter the conditions on the continent.

Navigation was another issue. Early in the war, the RAF discovered that often, the bombers could not come within 30 miles of the target city. To improve navigation and bombing accuracy, the Pathfinder Force was activated in 1942. Eventually the Pathfinders became 8 Group. Under the command of a brilliant young Australian navigator and pilot, Air Vice Marshal Donald Bennett, they gathered together the cream of the crews from other squadrons and rigorously trained

more of their own. Visual markers of different types were developed to mark routes, turning points, and targets. The Pathfinders would deploy first and not only plant the navigation markers and target indicators but also transmit wind reports to the Main Force.

As the raid preparations commenced, meteorological flight reports flowed back to Bomber Command headquarters at High Wycombe. There was no mention of high clouds over Germany. In mid afternoon, a mosquito crew reported no clouds at the bombing altitude, the formation of contrails at 25,000 feet, and possible cloud obscuration over the target. The analysis of these and other data indicated that not only would the bombers have no cloud cover but that clouds visible over Nuremburg would prevent visual bombing.

As the day progressed, a final decision was made on the route. British bomber tactics used a "bomber stream" technique. The aircraft would take off in a planned manner and, in the case of a raid which was the size of the Nuremburg force, form a train of aircraft, 68 miles long, about a mile deep, and hopefully constrained in width although this depended to a large part on wind conditions. Each aircraft was assigned an altitude, speed, and place in the parade of bombers with the intent of bringing the entire force of almost 800 planes over the target within a 17 minute time frame.

Attack routes were planned according to a number of criteria: the location of flak and fighter bases, the weather, the possibility of using feints to confuse the defenses, and the fuel available. For Nuremburg, the planner chose a simple approach which included a 265 mile straight shot, which became known as the "long leg" and passed close to a number of German fighter bases and also skirted the strong flak defenses around the Ruhr industrial complex. The attack force would then turn south, bomb, and return along a southerly route.

The 'long leg' aroused opposition by some of the commanders. Bennett strongly objected to the routing and proposed a more complex approach but the planning staff most of the group commanders elected to adopt the original plan. The unfavorable news about the weather led many to expect a cancellation of the raid but Harris approved the raid as planned.

German night fighter tactics were based upon two operational modes: *Wilde Zau* (Wild Boar) and *Zahme Zau* (Tame Boar). Wild bore used the single engine day fighters such as the Messerschmidt Bf 109. After departure, the pilot was directed to the general location of the targets by ground radar controllers after which he became a free-lancer, searching for prey. The basic disadvantages of this tactic was the short duration time of the fighter and the high rate of accidents resulting from landing mishaps in the dark.

Tame Boar was more successful. Surplus German bomber pilots, more experienced in instrument flying, were assigned to twin engine, radar equipped aircraft such as the twin engined Messerschmidt 110 and the Junkers 88. They would be directed to the bomber stream's location and then use their onboard radar to search out victims.

The Defenders



Messerschmidt Bf-109



Messerschmidt Bf-110 G-4 equipped with the SN-2 Lichtenstein Radar and prominent Hirschgeweih (stag's antlers) antennae.



Junkers Ju-88

Additionally, many of these aircraft were equipped with a new weapon, *Schräge Musik* (literally "Slanting Music" but colloquially, "Jazz Music") This weapon was a pair of 20 mm cannon mounted on top of the aircraft and firing near vertical. The British bombers had no visibility downward, there were, with few exceptions, belly turrets, so they were blind below. A German pilot equipped with *Schräge Musik* would maneuver into position and fire a short burst between or at the engines on one side of the bomber. The result was an engine or fuel fire which soon caused the aircraft to crash.

A disaster for the RAF rapidly developed. German signal intelligence and the experienced analysts in the air defense filter centers quickly determined that the target was Nuremberg. Fighters were launched at the most favorable times and gathered at the assembly beacons within close reach of the bomber stream.

As the bomber stream passed the Ruhr defenses, the fighters pounced. The bombers were easy prey to both the radar and non-radar equipped fighters, illuminated by the moonlight and often, forming white condensation trails marking their position for the hunters. The Nuremburg air battle was probably the longest ever fought between two air forces. The first attacks started over Belgium on the run in. The first bomber was shot down by flak around midnight. Then, in the next hour which it took to fly the 'long leg,' fifty nine more were shot down, almost all by fighters!

As the bombers continued their flight, the "stable" cold front started moving south, dissipating the few clouds which the bombers might use for cover and causing variable winds which caused the bomber stream to start spreading apart.

Additionally, technical problems with the windfinder's communications caused a failure in disseminating the data on the winds. The usually efficient Pathfinder route marking was also affected by the strong cross winds. Aircraft got lost. Some bombed the wrong city. Clouds covered Nuremburg and the target indicators dropped by the Pathfinders were misplaced. The mission had fallen apart and the return flight was yet to come.

Fortunately, the moon set and the bombers were cloaked by darkness from the visual Wild Boars but the radar equipped Tame Boars continued to attack, scoring victory after victory. It was said that the route of flight could be navigated by following the fires on the ground caused by burning Lancasters and Halifaxes.

Five hours later the last of the bombers reached the English Channel on the flight home. Ninety five of them never arrived. Nuremburg suffered light damage.

The final score in aircraft was a loss of almost 15% of the total British force, about ninety five bombers shot down and ten or more suffering so much damage as to be write-offs. The German fighter force lost about 10 aircraft.

Some time after the Napoleonic Wars, the strategist Carl von Clausewitz wrote "Since all information and assumptions are open to doubt, and with chance at work everywhere, the commander continually finds things not as he expected." Air Vice Marshal Harris and his staff gambled on the weather, the status of the German defenses, and perhaps wished for some luck but things did not work out as they expected.

Harris's hope to end the war by air, avoiding the necessity of a land campaign proved chimerical. Ironically, the Harris and the bomber force were soon placed under the control of General Eisenhower's Allied Expeditionary Force in support of the coming invasion of Europe, battles to be waged on land and bring an end to World War II.

CSRRA HIGH POWER RIFLE CLINIC
CADETS INVITED
16 April, 2011

The Connecticut State Rifle and Revolver Association is running its annual high power rifle training session of juniors from 12 to 19 years of age. The session is an introduction to the safe handling and use of the AR-15 5.56 mm rifle.

National Rifle Association instructors, all experienced high power rifle competitors, will teach a safety course and then explain the opportunities available to join teams and compete in local and national championships. A demonstration of the use of the rifle will then be

held and participants will be allowed to fire, under supervision, on the Bell City Rifle Club's 200 yard range.

There is no charge for this event. If a Cadet wishes to participate, he or she must be accompanied by a parent or guardian over the age of 21.

Bell City is located at 1774 Mt. Vernon Rd in Southington.

Those interested should contact on of the following:

Brad Palmer 860-649-4446
Jim Castonguay 860-738-2954
Randy Bieler 860-272-1725
Wallace Lyman 203-269-8931

This is not a CAP sponsored activity but Maj Rocketto, CTWG DAE, will answer questions. Contact him at the email address on the masthead of this publication.



The Thames River Composite Squadron Team: Cadet Roe, Coach Rocketto, and Cadet Planeta on the 600 yard line, National Championships, Camp Perry, Ohio. Cadet Roe is now in the CT National Guard. Cadet Planeta is a 2nd year Midshipman and fires for the US Naval Academy.

AEROSPACE CURRENT EVENTS

Shuttle Discovery on 39th and Last Mission

Achieving orbit after a long delayed launch, the crew of *Discovery* examined the craft for signs of damage. Using a 30 meter laser tipped rod, the carefully scrutinized the nose and wings for signs of damage. During launch, at least four pieces of insulating foam from the external fuel tank stripped off and struck the shuttle. No damage was found.

USAF Col Eric Boe, a former CAP cadet is aboard as pilot.

Discovery is delivering a cargo of supplies which will be attached to the International Space Station (ISS). The storage container will be attached to the ISS and used as a storage compartment.

The ISS now has six different spacecraft parked at its docking stations: *Discovery*, two Soyuz capsules, and Russian, Japanese, and European cargo ships. On Tuesday, NASA will decide whether to extend the mission of an extra day for a photo shoot of this unusual configuration.

Endeavour is scheduled to be launched in April and the *Atlantis* mission in June will close out the three decade old shuttle program.

Boeing Wins Tanker Contract

Boeing's KC-46A, a version of the 767 airliner, was declared a clear winner in the more than 30 billion dollar contract for 179 new USAF tankers.

The new aircraft will be equipped with Connecticut built Pratt & Whitney engines.

Boeing's competitor, the European Aeronautic Defence and Space Company (EADS) will be briefed on the bid and will have ten days to challenge.